there has been only one reported death from pneumocystis with concurrent saprophytic-mold pneumonia after myelosuppression from chemotherapy.[8] Potential contributing factors in this case included prednisone therapy, which decreases total T-cell counts when administered every six hours.[9] To our knowledge, concurrent cytomegalovirus and pneumocystis pneumonia have not been reported in any patient with chronic lymphocytic leukemia or as the result of corticosteroid therapy alone. Patients with chronic lymphocytic leukemia may be predisposed to a reduction in the CD4:CD8 ratio by the nature of their disease.[6,7] Fludarabine selectively depletes CD4 cells to alter this ratio further and may contribute to the generation of a clinical and immunologic picture similar to that of AIDS.

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ENVIRONMENTAL TOBACCO SMOKE AND LUNG CANCER

To the Editor: There is much concern today over the relation between exposure to environmental tobacco smoke and lung cancer. Some 20 cohort and case–control studies have compared lung-cancer incidences in nonsmoking women married to smokers with those in nonsmoking women married to nonsmokers and reported risk ratios of up to 2. Several have reported dose–response relations, and others have shown increases, although not statistically significant ones.[1]

At this stage, a statistical association between exposure to environmental tobacco smoke and an increased risk of lung cancer should be accepted as real. However, the question of whether this association describes a causal relation is still open.

The biologic plausibility — an important methodologic requirement in epidemiologic studies of weak associations[2] — is rather low. Environmental tobacco smoke contains carcinogenic agents, but risk estimates are high in view of the relatively low doses received. Even at high levels of exposure, the doses may be only about 1/10 to 1/2 the dose received by someone actively smoking one cigarette.[3] Furthermore, the lung-cancer risk among nonsmoking women has not increased during the past decades, suggesting that environmental tobacco smoke does not add significantly to lung-cancer mortality among women.[4]

Studies of environmental tobacco smoke commonly compare risks in nonsmoking women married to smokers with those in nonsmoking women married to nonsmokers. The incidence of lung cancer in this population ranges from 3 to 14 per 100,000, with differences in the rates for various ethnic groups living in the same environment.[5] This suggests that environmental factors other than tobacco smoke influence the risk of lung cancer in this group — perhaps radon exposure[6] or food constituents.[7] There is also increasing evidence that certain factors in foods, particularly vegetables and fruits, protect against environmentally induced lung cancer. Differences in risk ratios of up to 5 have been found between smokers with and those without an adequate supply of vitamin A in the diet.[8]

If groups exposed to environmental tobacco smoke were selected either for exposure to other lung-cancer risk factors or for a lack of protective factors, exposure to environmental tobacco smoke would be confounded. This hypothesis is supported by two recent studies comparing dietary habits among nonsmoking women married to smokers and nonsmoking women married to nonsmokers: one found that the group married to smokers had a higher exposure to risk factors and a lower intake of protective factors,[9] and the other that this group had a lower intake of a specific protective factor — carotene (Sidney S, Caan BJ, Friedman GD: unpublished data).

In the nonsmoking female population, selection for those with a higher exposure to lung-cancer risk factors or a lower intake of protective factors would result in differences in lung-cancer rates of about 2, which is consistent with ratios that have been found for the risk of those exposed to their husbands' environmental tobacco smoke to the risk of those not exposed.[1]

Studies evaluating the hypothesis of a relation between exposure to environmental tobacco smoke and lung cancer must take into account other environmental risk or protection factors and the possibility that exposure to environmental tobacco smoke may be confounded. This has not been considered in the majority of such studies. Until this has been done, the claim of causality between environmental tobacco smoke and lung cancer remains uncertain.

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SELECTED PSYCHOLOGICAL CHARACTERISTICS OF ANABOLIC–ANDROGENIC STEROID USERS

To the Editor: Although psychological and behavioral effects associated with the administration of anabolic–androgenic steroids were first noted 50 years ago,[1] recent reports suggest that affective and psychotic syndromes, some of violent proportions, may result from steroid use.[2,3] Cases have been reported in which the presumed psychological and behavioral effects of steroids are alleged to have substantially influenced the commission of criminal acts.[4,5] This